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RURAL INDIA

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" Salvation of India lies in Cottages."

—*MAHATMA GANDHI*

CRISES GALORE

THE year 1957 has ended by focussing public attention on a variety of 'Crises' undermining the solidarity and integrity of the country. We are confronted with the economic crisis, the food crisis, the plan crisis, the unemployment crisis, the national language crisis and the administrative crisis to name only a few. But the basic of these is the crisis of 'Character and Confidence' which is most universal and which is paid the least attention in our Secular State. We have not the least doubt in our mind that it is the neglect of 'National Character' by the present leaders after Independence, which has plunged the country into the whirlpool of innumerable crises.

The significance of building "National Character' for the development of the country is hardly appreciated and encouraged by our present rulers. Power, personal benefit and propaganda for creating Utopias fill the entire picture of public life throwing all moral values and scruples to winds. In the race for power and profit which dominates the political scene in the country, one does not see any room for integrity of Character which is the basis of all progress. It is no wonder that in the absence of strong basis of character all our big adventures for developing the country end in poor performance and disappointing results.

Those occupying places of authority and leadership hardly, if ever, stress the importance of character and integrity in their talks and care to set their own personal example for others to follow. They seem to labour under the mistaken belief that the Indian nation could be made great and prosperous by launching a number of plans, even without regard to the possibility of their implementation. All such mis-concived adventures without the backing of character have landed the country into all sorts of crises we are faced with today.

Nothing strong and enduring could be built without the basis of strong character of the people, which is in short supply in our country. Apart from financial and food scarcity which is so much talked about by the leaders, the greatest scarcity which is hampering the progress of the nation is the scarcity of men of character and integrity. It is significant that our Vice President, Dr. Radha Krishnan lately pointed out this basic but almost neglected aspect of our national life when he is reported to have stated at Jaipur :—

> "We have many clever people but few people of integrity. It is essential that if we are to build up the great Indian Nation, we must develop this integrity of character".

Crisis of Character

It is rather distressing that during the last 10 years of Independence, there has

been marked fall in the moral standards of the people. The former Chief Justice of the Supreme Court of India, Shri Patanjali Shastri, recently deplored this fact in the course of his convocation address of Banaras Hindu University and stated :—

"The ten years of self-rule had witnessed a marked fall in the moral standards of society. "Honesty, integrity, sense of social obligation and other civic duties are on the decline.

"The present crisis of character", was basically traceable to a "clearage in our thought pattern marked by divergent conceptions of what was desirable living in our new democratic set-up and the consequent confusion in our outlook on life.

"Need we allow ourselves to be westernised in our aims and outlook by discarding our spiritual and cultural traditions."

The former Chief Justice of the Supreme Court of India, Shri Patanjali Shastri, with judicial training of mind of a life time could not be accused of being a cheap propagandist or a critic of our so-called Welfare State even by his opponents. If he deplored the fact of marked fall in the standards of honesty and integrity among our people during the last 10 years of self-rule he could be trusted upon to have spoken from his heart and after weighing his words most judiciously. This should be enough to awaken our ruling authorities from the self-complacency of building a 'Great Indian Nation' on the declining standards of morality and moral values of life.

Cleavage and Confusion

The prevailing confusion in almost every aspect of the country's life, as pointed out by Shri Patanjali Shasrti, is traceable to cleavage in the thought pattern of the top-most leaders which is marked by divergent western conceptions without strong moorings to Indian spiritual and cultural traditions. Politically, we have adopted Democratic system and have modelled our Constitution on U. K. and U. S. A., while the ideas of Republicanism, Secular State and Socialistic Pattern of society on which the State actually functions have all been borrowed from the Communist Russia. In name we are a democracy, but in outlook, tendencies and actual ways of doing things, the leaders of the ruling party are prone to adopt dictatorial ways to carry out their designs. Obviously, uncertain policies of the State and contradictory declarations of responsible Ministers must breed large scale confusion and crisis of confidence from which the country suffers.

All this confusion has begun to manifest itself in giving rise to a variety of crises and have dispaired a large thinking section of people about the success of Democracy in this country. An eminent politician of Jaya Prakash Narain's standing has lately given public expression of views that "*We will end up in some sort of dictatorship either Communist or Hitlerian.*

Causes of Failure

Decline in the standards of honesty and integrity, which is pronounced, is primarily responsible for too many muddles, widespread corruption, poor performance, wastage of public money and ultimate failure of most of our development programmes. In the course of Convocation address of Nagpur University, another eminent scholar and politician, Dr. M. S. Aney, former Governor of Bihar, dwelt on the theme of developing 'Character' among the people and urged the Government to look to this aspect of the people's life to make its plans a success. He is reported to have stated :—

"The big industrial revolution, which the Government proposed to bring about, would be successful, if there were reliable persons to work for it. Men might be adept and expert, but if they were not honest and conscientions, the experiment will fail. The Government should take every precaution

against any chance of failure. The formation of character of the students should, therefore, receive even greater attention than imparting scientific and literary knowledge in universities.

"This aspect was not receiving the attention it deserved either of Universities or of the Central and State Governments.

"Character training had been regarded as an integral part of religious training. Separation of religion and morality was likely to result in the annihilation of both rather than the growth of either.

"The problem of character formation became difficult in educational institutions run and supported by a Secular State. Mere rationalism could not take the place of religious faith as an instrument of character building.

"The Government of India should remove the apprehension among a considerable section of people that "The Indian Republican Government is irreligious." If the people become irreligious for want of facilities for religious education and religious practices, they would in 99 cases out of 100, relapse into a state of immorality and anarchy. The Government should "guard against the danger which is growing rather rapidly."

Signs of moral anarchy which is the main cause of the failure of the Government in various undertakings and projects and also in the sphere of the country's administration, are widespread and real, only those in authority are unmindful of it. Everyday threats of strike in essential public services coupled with increasing insolence, inefficiency and corruption among public servants and hooliganism and indiscipline among students are all symptomatic of declining standards of morality and character which, as pointed out by Dr. Aney, present real danger to the very existence of the State. But it is a big question mark, whether those running the State will realise their mistake of neglecting 'National Character', which is at the root of their too numerous failures and consequent crisis of confidence in the country.

Build National Character

Whatever may be the intentions of the present rulers to declare the new State a 'Secular State', the climate that it has created in the country is that of perverted moral values. Flattery, hypocricy sycophancy and dishonest work, which is the common feature of our public life after Independence, are open manifestations of declining standards of character and morality. It is rather self-deception to think of national development through large scale planning while the human factor, which is most important in any scheme of development, is lacking in character and giving poor account of itself. The crop of crises which the country is reaping is the result of confused policies of the administration at the top and poor performance of the executive down below.

Building of National Character is the basis of all development without which no worthwhile development is possible. This should receive prior consideration at the hands of the leaders in administration in the present and future schemes of national planning. That way alone lies the country's development and prosperity and escape from crises and confusion we are facing.

ALL INDIA ECONOMICS AND AGRICULTURAL ECONOMICS CONFERENCES

By : **MAHESH CHAND**

General

ANOTHER Economics Conference shows up the following realisations by economists :—

1. More data are needed before their theoritical ideas can be converted into "practical advices."

2. Economists are paying themselves more than they *need* (or deserve).

3. It is a fashion among economists to "Rubber Stamp" governmental ideas at times (perhaps when past results are above expectation) and to become critical when things go wrong.

The Agricultural Economics Conference showed a greater inelesticity and more concern with technical details. Where theoritical scope was thrown up such as in the topics on "Input Output Relations" and Agriculture and its Terms of Trade, there were few papers while Co-operative farming attracted many times more papers. Even among the papers submitted under the two topics mentioned above there were only a few which raised the theoritical issue. One had the feeling that agricultural economists want to adopt the technical terms and ways of mathematical analysis which one comes across in mathematical economics to agricultural economics with comparatively less *ado* about the applicability.

Shenoy's Analysis

The Presidential address remind one of the need for a short simple exposition with details put down in foot notes. It shall then be possible for the address to be read in full in a reasonably short period and make sense for the lay man. It is no good to write forty printed pages and then to read extracts. The audience only keeps tracing the beginning and end of extracts instead of paying full attention to the speaker. Also it makes for a less continuous and connected delivery.

Prof. Shenoy who is more interested in physical resources reminded the economists that money is not " goods and services" and prices will rise unnecessarily in under-developed countries if there is not an equal rise in consumer goods. For development it is necessary that more and more of the physical resources of the country be made use of, and lack of money should not be a handicap in this. Even created money may be used provided the additional money income reaching the hands of the public is not used to secure a consumer goods beyond what it was consuming till yesterday or utmost beyond what are available. Where resources are secured from abroad against foreign credit or foreign reserves, the effect is deflationary and welcome. But if foreign resources have to be secured by exporting more goods and if "more goods" mean a reduction to less than previous consumption within the country, it will have an inflationary effect.

Prof. Shenoy has maintained that this has been the case in India. His analysis would show that created money has led to increased investment which in turn has led the private sector to compete with the public sector for the available resources. In other words, existing physical resources tend to be mobilised by the State not out of "unused resources" but out of resources already used by the private sector. Even increased imports have been paid for by increased exports of consumer goods and raw materials. This has accentuated the acuteness of the situation.

Sacrifice and Character

Consequently Prof. Shenoy maintained that the Plan expenditure be pruned and even the rupee be devalued in order to escape the external payments problem. He also has advocated suppression of consumption and greater import of food grains. He has discouraged a policy of agricultural price support and would perhaps call it a luxury where agricultural goods account for a substantial fraction of the national income. We feel like agreeing with him so far as money terms are concerned. The physical

targets of the second five-year Plan call for an increase particularly in the agricultural sector. And, what is important for achieving them within a lower total expenditure is the realisation and adoption by the *preachers* (including Prof. Shenoy) politicians and administrators of a *way of life* justified by the present circumstances.

Still more important is the need for character and sincerity to work in the interest of the country and community, instead of working even at higher levels for self interest. There is ample scope for increased efficiency in work.

Grab as best as Possible

We see economists gather every year in conference, with facilities and waste that would be inconsistent with their preachings. We see Directors of Statistics trying to put up good shows at a rate which overstrains the lower ranks without any of the real functions being performed. More grants, more projects, more compromises, teas and travels as corrollary are not what are needed today as against a bold courage to stand for and attend to what is right and feasible. We are more for presidentships, memberships, false credits and status.

One wishes economists had seen the desirability for emphasising the need for theoritical clarity of conception and self control to elect a non-assuming teacher like Prof. J. K. Mehta, who received international recognition for original thinking at a time when many of our economic leaders were still in the making as their president, instead of re-electing past presidents. One cannot understand the plea that Mr. X does not come to our conference : hence we should not think of benefitting by his qualities.

Pricing Policy

The Economic conference discussed the problems of "Pricing Policy in the Second Five-Year Plan", "Theory and practice of Regulation and Fixation of wages", "Choice of techniques in consumers goods industries" and "the Second Plan needs Rephasing" as a current topic. While it was considered by the majority that the Plan had no pricing policy-this was questioned by men like Dr. B. K. Madan (Reserve Bank of India)-a desirable policy should be to maintain some sort of parity in the commodity and the factor markets. Yet some speakers suggested that the price should secure better income-distribution while others favoured a better resource allocation. Hence while some pleaded for higher prices for agricultural produce, others wanted a higher wage in the urban areas to attract labour away from rural areas. Yet others pleaded for price control and a forward price policy. While Loknathan (P. S.) would be for an increase in wholesale price index by not more than 3-5% per year, an inter-sectoral price evaluation ensuring demand-supply equilibrium in each sector, guaranteed income to agriculture and a price policy in the public sector to build up reserve, Gyanchand would say that deficit financing is wrong initially, consequentially and prospectively. Ezekiel would see the price policy conditioned by the pattern of investment to an extent and another friend would see in the policy advocated by Loknathan a snag to underwrite the inefficiency of bureaucrats and in certain case (e. g. public utility) an effect to raise other prices. There was no agreement which might seem to emerge out.

Wages

In regard to wages it seemed to be agreed that other social sciences have to be consulted for norms and that if national income increases, the share of workers (i. e. wages) will also increase. So far as rural areas are concerned one

submission correlated low productivity with low wages, but lack of organisation was seen to impede implementation of minimum wages. While wage-increases were reported to lead to greater absenteeism the implementation of minimum wages and promotion of collective bargaining were favoured. The idea of a national minimum of wages was not favoured though the idea was made current that in fixing wages at the stage of individual factory, individual industry and national level, the profits, wage-differentials and cost of living should be respectively made the basis. There was a discussion about the difficulty to measure "capacity to pay" and "productivity." The final conclusion : vagueness.

Choice of techniques

Coming to the choice of techniques in consumer goods industries Ghosh (D) maintained that atleast here the economist had something to say. He favoured capital intensive techniques on grounds of economy and pleaded that new ways of urbanisation can enable us to avoid the evils of unbanisation. But there was fumbling when it came to speak in favour of supporting more dependents unemployed consequent on capital intensive methods. Result : no finality.

Under economists fire the rephasing of the plan came to mean cutting down of the plan expenditure and not much the physical targets.

Input-output analysis

The agricultural economists favoured the need for more regional and crop-wise study so for as output-input relations are concerned. The problem of how to evaluate family labour and that of standard concepts and practices for study were rightly emphasized by Prof. Driver (P. N.). Loknathan emphasized the importance of a 2 sector study on the lines of leontieff's Input-Output analysis though it was explained that data are not available for the purpose in India.

Agriculture and its Terms of Trade

The expression terms of trade was not clear. While the difficulty of measuring the absolute terms of trade was recognised, its utility was not recognised. Ganguli (B. N.) was of the opinion that the terms of trade should favour atleast the very small cultivators and income earners even in an under-developed country planning to grow while another view was that growth, which is another name for capital formation for more consumer goods, would demand a greater sacrifice on the part of consumer goods producers in general and agriculturists in particular.

Co-operative farming

The twenty four papers on co-operative farming were not very satisfying to Sen (S. R.) who was glad that a seminar is to be organised to thrash out the issue further. There was a general feeling to organise multi-purpose co-operative societies to increase agricultural production with or without joint farming and to classify the society under Co-operative Farming (may be to save face !). The President elect being of a view different from that taken by the President for the Conference, we hope to have more ideas and paper filling in the name of co-operative farming in the near future.

All India Social Service Association

The conferences offer excellent scope for sharpening and clarifying the ideas of teachers of economics and are valuable for the young batches which were subject to falling aquisition of knowledge in the war and post-war period. But the conferences mean a great strain on the hosts. Nagpur was the venue for Economics, Agricultural Economics and Commerce conferences

held consecutively. A forth is likely to be added soon viz. All India labour Economics conference. It is time all are merged into an All India Social Science Association and meet like the Indian Science Congress in sections each year with greater co-operation, good will and homogeneity.

WAY TO PROSPERITY AND FULL EMPLOYMENT

By: **NAUTAMLAL C. TEJPAL**

BIG unemployment plus a little education is the greatest menace to internal peace. When the masses loose the feeling of security due to unemployment on a vast scale, and the modern propaganda machine keeps on enlightening them about their miserable condition compared to the luxuries of modern civilisation; the unsatisfied masses take every opportunity to resort to strikes and mob violence whenever their demands are not satisfied.

Europe and America are able to keep down their unemployment by maintaining armament industries and huge armies always preparing for the next war, while most of the civilians are fully employed in repairing the damages of the previous wars. Long peace causes unemployment according to the present set up of the industrial age.

According to our present policy and planning we are trying to reach and keep up with the industrial progress of the West. So, rationalisation is bound to come in our industries creating still more unemployment, though the industrial production will show an increase. However, before we could reach the present standard of industrialisation of the Western Countries, they would have adopted automatum system of production, and inspite of all our sacrifices we would always remain backward in industry.

Human labour is the source of all wealth and money is only a token to exchange the products of labour. On this principal the German financial wizard–Dr. H. Schacht, had created a special currency to achieve full employment during Hitler's regime. By this system, without any capital the bankrupt Germany was able to create a powerful war machine, solely with the help of the human labour. We too can create employment and more production by the same method thereby creating more wealth without extra taxation. Even today all the employed persons in Germany contribute as much as 15% of their wages to help the unemployed.

By simply reserving the production of cloth to the handloom weavers, we can give employment and bread to atleast one crore of persons. And there are hundreds of such small industries which could be managed by a family, in which no one is master of any one and none has a master and all are SELF-EMPLOYED.

When millions of people are given the chance to work full time, we can increase the production of consumer's goods, increasing at the same time the purchasing power of masses. Women too can get light work at home in their spare time. Even an increase of one anna per day per head would create more

than Rs. 700. crores extra national wealth per annum and this wealth will reach the people who are the most in need of it.

We hear much talk about reducing the inequalities between the rich and the poor, but the first step should be to level out the inequalities between the employed and unemployed. Even the nationalization of all the industries cannot create new jobs but will create powerful vested interests of bureaucrates and workers as in the totalitarian States.

We are shocked to hear the distruction of surplus butter and potatoes in America; but it is more shocking when we are wasting so much idle man-power when we have so much to do.

All our commodity prices are based on under-employment. Our nation has to bear the cost of feeding the greater part of the population which is idle or semi-idle for half the year, and this huge cost of feeding the idle hands falls indirectly on the cost of every commodity produced in the country. If this idle man-power is made productive, the cost of even the products of cottage industries could be brought down in line with that of the factory made goods.

It should be noted that seventy-five percent of our people do not need anything else except food, roof and clothing. Everything except clothing is produced in the villages. But at present the cottage industries do not prosper as there is high pressure policy of the big industries to sqeeze out the small ones. The strongly entrenched vested interests in the shape of industrialists, brokers and dealers in manufactured goods resist with all their might any encroachment on their interests. Further their case is strenghened by the Government officials who are schooled in the Western type of economy. The big industries pay heavy income taxes and excise duty which are necessary for implementing the Five-Year Plans. These people are able to create a myth among the people that small scale industries can never supply the requirements of the consumers.

At present the Government is rendering some help to the cottage industries through the Khadi & Village Industries Commission. But this is simply a window dressing to pacify a few Gandhian fads. However there is a better way to give real and effective help to the cottage industries without supressing the activities of the big ones.

In order to create a guaranteed market for the products of the cottage industries, every wage earner, industrialist and merchant should buy the products of the cottage industries for the value of 5 to 10% of his income. For this the Government should issue a special DEVELOPMENT CURRENCY, so that 5 to 10 percent of the salary or wages should be paid in the Development Currency. Business firms, small shopkeepers, industrialists, persons engaged in liberal professions, artisans and agriculturalists all should be given a fixed quota of the DEVELOPMENT CURRENCY based on their income.

The percentage of THE CURRENCY should be sliding as in income tax, say 10% for the higher income group and 5 or 2½% for the lower income group.

This CURRENCY should be valid for purchasing products of the Cottage Industries from the certified stores. Every 3 months, different designs and colours of the Currency should be issued and each series should be valid for 3 months only after the date of issue, so that the same could not be hoarded.

As soon as the purchase and sale of the products are properly organised, the

percentage of currency should be increased gradually instead of increasing taxes.

A person earning only Rs. 50 per month shall have to get the Development Currency for Rs 2½, but against this amount his whole family can get work at home and can earn as much or more than the above amount, since work at home would be available to every one by the above scheme. The sacrifice is very little since against the 5% of the Development CURRENCY the poorest wage earner gets the goods in return which might be 30% dearer than the factory made goods. This will mean only 1½ % sacrifice of his total wages; this is very little premium indeed to ensure full employment for all. Further the taxes which at present are imposed by the Government for solving unemployment problems, refugee settlement etc. would not be necessary by the above scheme, so there would be reduction or total removal of some taxes like sales-tax, thereby reducing the overall cost of living.

By the production of bare necessities through cottage industries, we can spare the motive power, capital, skilled labour and management capacity for heavy industries like rolling stock, automobiles, metal and chemical industries, electric equipments, mining etc. At present all the best brain power, capital and skill are occupied in minting money by easy and light industries which are built on the graves of the cottage industries.

Let khadi cloth cost as much as Rs. 3/- per yard, the people will not die of exposure. But the spinner should earn as much as Re. 1/- per 8 hours work at home by hand spinning. This will popularise hand spinning. The clothing cost of a family may be doubled by this, but the cost of the food would be halved; as the spare time of the farmer would be utilized in spinning and weaving, thereby reducing the overhead charges of the food production. When a farmer can make extra income by cottage industries, the cost of food products is bound to go down. So in spite of high cost of clothing, the family budget will not suffer, as the cost of food will go down. Further every home will be a small producing unit, increasing the family income and the national wealth.

The introduction of the 'DEVELOPMENT CURRENCY' will change the whole economy of the country. The villagers will not have to run here and there in search of jobs, and there would be no more city slums since all will get work in their own village homes. This will achieve a kind of revolution in the country dreamt of by Gandhiji, which would be a guide to all the countries of the world threatened by nuclear war.

CAPITAL-OUTPUT RATIO AND THE SECOND PLAN

By : Prof. S. V. **RAMAYYA**

IN the First Five-Year Plan framed by the Planning Commission we find calculations made about the possibility of doubling National income by 1971-72 (i. e.) in about 21 years time and the per capita incomes doubling themselves by 1977-78 (i. e.) in a period of 27 years. These calculations are made on certain assumptions about the rate of population growth, the proportion of investment

to national income and the capital-output ratio. But from the progress of the first plan by the end of the 1955-56 and the beginning of the Second plan, we wonder, how far these assumptions have been fulfilled.

Enormous amounts of money have been spent on Community Development Schemes and the general improvement has not been encouraging. No doubt the problem of rural development is so vast that no striking results can be achieved in a short period. The Balwantrai G. Mehta Committee found that even in the blocks where real work had been done, the results in terms of agricultural prodution were not impressive. What we are concerned here is the fact that the output or income should have some reasonable relation to investment and where in an under-developed country like India, sums of money are raised by hardship we cannot be complacent and not be worried about the capital-output ratio.

Even though about Rs. 400 crores are spent on agricultural development and allied items we do not find proportionate results in output and the sceptre of scarce conditions are prevailing again. The Planning Commission seems to have been carried away by high optimistic expectations of food production simply because we had, due to Nature's bounty, some remarkable increases in food production during the 3rd and 4th years of the First Plan. The Planning Commission estimates that capital-output ratio at 1.8 : 1. This highly favourable outcome even according to the Commission is the result partly of good monsoons and it also reflects that considerable expansion has been possible through utilisation of unutilised capacity.

For the Second plan period an investment of Rs. 6200 crores is expected to result in an increase in national income of Rs. 2680 crores. This gives a capital-output ratio 2.3 : 1. This is due to higher capital intensity consequent on the industrialisation programme and this programme may become more intense requiring additional capital with less output. Hence the Commission assumes capital-output ratio of 2.6, 3.4 and 3.7 for the third, fourth and fifth plan periods respectively.

We do not accept these optimistic calculations of the Planning Commission. Not that we cannot achieve these results given efforts and necessary sacrifices. But how far these assumptions are present in our economy at the present time may be debatable. The purpose of our Plan is to increase the productivity of goods and commodities so as to assure the common man certain minimum necessities. So the amounts which we invest must bring us sufficiently reasonable fruits if the burdens on the community are not to be great. This productivity, we agree, is dependent on a number of factors like technological progress, optimum utilisation of resources, and efficiency of the organisational factors. But of all these the human factor is more important. Do we have or are we inspired to put forth our best efforts to pull ourselves out of this present plight ?

In China, we are told, by various committees that there is a big increase in agricultural output and that priority for industry is stressed in the Second Plan. The Second Plan proposes to catch up with Britain or surpass her in industrial output and for this Mr. Li, Chairman of the State Planning Commission says "a great, honourable but stupendous task for the Chinese working class and the rest of the people". This only reminds us what efforts we have to put forth if we are to fulfil the calcula-

tions of the Planning Commission on the capital output ratio.

Prof. Simon Kuznets and Dr. Colin Clark were pioneers in calculating quantitative relationship between income and capital. Apart from these original sources, other estimates by other writers are only guess works. The studies by these two professors indicate that the ratio of the value of capital to the value of output seems to be constant at the margin and this marginal ratio lies between 3 to 1 and 4 to 1; we may say that if we want to raise our national income by Rs. 25 we have to invest Rs. 100/-. But whether these figures are applicable to the under-developed countries is a moot point.

It is argued by some people that the capital income ratio is higher at the margin in the less developed countries because of waste of capital and slow growth of technological knowledge. It is equally argued by other people that the very backwardness of technology makes possible spectacular results and because of the existence of vast new natural resources the capital income ratio is lower. On these differing opinions it is difficult to arrive at appropriate conclusion.

We may agree with Prof. Lewis that "the capital-income ratios differ widely as between the different sectors of the economy. Thus the ratio is much higher in public utilities than it is in manufacturing; even in an advanced industrial country it is five or six times as high and it seems to be even higher in the earliar stages of economic development, because the substantial economies of scale which this sector enjoys, lower the ratio rapidly as economic development proceeds. On the other hand when capital is invested in a public utility, it may increase productivity not only in that utility but also in the rest of the economy, so that net result for the country as a whole may be a low capital -income ratio".

Whether we can use more capital or less in developing certain sectors of the economy depends on particular circumstances and conditions prevailing in those countries. Where there is density of population as in our country capital should be used sparingly especially in agriculture. In our country it is estimated we invest 5 percent of our national income annually which might raise national income by $1\frac{1}{4}$ per cent which is more than offset by the increase in population. So if we want to raise our living even by 1 percent we would have nearly to double our current rate of investment. In the First Plan period it is estimated that our national income has increased by nearly 18% and we aim at increasing national income in the Second Plan by 5 percent annually which means we have to invest about 25 percent of our national income annually.

Sometimes investments in some fields do not yield fruitful results, because of bottleneck in other fields. In India the shortage of skills is one of the biggest bottlenecks. We have to take into account also the replacement of obsolete or worn out capital. It is said that the proportion of national income required for replacement is much smaller in the less-developed countries since their stock of capital is much smaller in relation to income. "As income increases and as we stress more and more industrialisation there is a natural proportion invested in manufacture to rise and the proportion invested in agriculture to fall". This is also necessary to absorb surplus labour population.

These reflections are important to us as they show us the relation between capital and output. Crores of rupees

are being spent on the development programmes in rural areas with a view to bring the all round development of village life and also to increase agricultural productivity. But to what extent have these programmes yielded results. The Planning Commission hopes to cover the Community Development Programmes by the end of the current plan period. The Balwantrai Mehta Committee does not favour the three phases of the programme, the extension stage, the intensive development stage and the post-intensive stage. The "post-intensive" blocks of villages were found to present a picture of inactivity and frustration as a result of the cut in development expenditure.

The committee finds that the villagers had no doubt shown considerable enthusiasm over the new roads, schools, health centres and community halls but the main problem of raising the level of production remained.

We feel that the stress should be for every economic activity on increased production. A certain investment should yield a reasonable output. Especially in a vast country with teeming millions of population we cannot neglect the production side which ultimately raises the standard of living. If the targets and calculations laid down by the Planning Commission are to be fulfilled, we must work hard and work alone brings us the reward.

A NEW REVOLUTION IN RURAL INDIA

By: **M. A. OOMMEN**

THE Community Development programme has been operating in India for nearly 5 years now. The programme has already reached nearly 90 million people living in about 160,000 villages. It has passed the experimental stage. It has been tested and found universally acceptable as a new approach to rural development, aimed at bringing about "a better and fuller life," to the teeming millions of rural India. Encouraged by the initial success of the Programme, the Government of India have decided that the entire rural India will be covered with it during the second Plan Period and at least 40% of the Area will be taken up for intensive development.

Vital Programme.

The Community development programme is considered to be a vital part of India's economic planning. The need for Community development in our country is obvious. 82% of our people live in the 558,000 villages of India, most of them ill-clad, ill-housed and under-fed. Infact the prosperity of India lies in the prosperity of these villages. Previous attempts at rural development were haphazard and piece meal. But the community development programme is a concept of many-sided development as distinguished from the development of particular aspects of rural life. It is a multi-pronged attack developing the various inextricably interdependent sectors of the rural economy. This multi-purpose approach has been found necessary because the villager essentially is a multi-purpose person. His problems are inter-woven and cannot be dealt with in compartments. The Grama sevak (Village Level Worker) who is the last official link in the Community development machinery, is a multi-purpose worker, always trying to help the

villager in his multiferious needs. Other officials concerned with the programme, for example, the Development officer and the Social Education Organiser have been similarly trained to take a total view of the problem.

The method of community development for planning and rural reconstruction is, of course, commendable from various other point of view. First, it leads to a planned development of certain areas to begin with and acts as an initiating force for further development in other areas. Second, it emphasises the regional aspects of planning. Third, it is an effective way of labour mobilisation which can increase the rate of capital formation in the country and which can reduce the capital-output ratio. Fourth, it also leads to the saving of financial resources of the Government because of voluntary labour contribution. Lastly, and most important it is here that we can really think of the adoption of the principle of planning from below and mass participation in the formulation and execution of the plan. Thus the idea of Community Projects is sound in principle, though there may be serious difficulties in the actual working.

Great Tasks Ahead

The basic aim of the Community Development Projects is to increase agricultural output by every possible means such as land reclamation, increase of irrigation facilities, supply of quality seeds, implements and manures, spread of knowledge of scientific cultivation and improvement of veterinary services. The target for additional production of food grains in the second plan is placed at 10 million tons that is an increase of 15%. The National development Council leans heavily on the Community Projects in the matter of agricultural production. The production in fact must be more than 25% if we were to keep down the level of prices and to create the necessary milieu for further development expenditure. "A substantial increase in agricultural production is of crucial importance to India's economic progress" says the annual report of the Colombo plan Consultative Committee (1956-1957). Hence the tasks ahead of the Community Projects and the National Extension Scheme in our country is a great one.

Other aims of the community projects are to tackle the problem of unemployment in rural areas; to improve village communication, to foster primary education, public health and recreation, training in the craft, small-scale industries etc. Changing the outlook of all village people is an essential objective of the programme. When all is said and done, the most important of our recources are our people. It therefore logically follows that the Community Development and National Extension Programmes must for ever keep in mind that the basic objective must be to develop the village people to become self-reliant, responsive citizens capable and willing to participate effectively and with knowledge and understanding in building a new Nation.

Provision for bringing under training people in professional crafts is an important aspect of the programme which includes refresher courses for improving the standard of existing artisans. Training of agriculturist extension assitants, Health workers and Executive Officers is also contemplated. By the end of the Second Plan period there will be 61 Extension Training Centres.

Works done so far

The Community Development Programme was inaugurated by the President of India on October 2, 1952, the birth Anniversary of Mahatma Gandhi. In the

beginning 81 development Blocks in 55 Community project areas were taken up, covering a population of 15 millions. Fifty five more projects were started in the year 1953-54. This was the second instalment in the process of spreading Community development programme in different parts of the country. The Community Development Programme is linked up with the National Extension Service programme. Community development is the method and National Extension Service the agency through which the process of transformation of the social and economic life of the villages is initiated The Planning Commission and the Government of India approved in April, 1953 a scheme to provide Extension Service. By the end of the first plan period 1200 Community development and National Extension schemes were started. It covered 122,957 villages with a population of 79.8 millions. The target for the Second plan is that the entire country be served by the national extension service. During the second plan 3800 additional development blocks are to be taken up under the national extension scheme and of these it is expected that 1120 will be converted into community development blocks. The Plan provides a sum of Rs. 200 crores for implementing the programme.

The study Team for Community Development and National Extension scheme headed by Mr. Balwantrai Mehta has expressed the view that owing to limited financial resources and shortage of the technical personnel and supervisory staff, the decision to cover the entire country with N. E. S Blocks during the second plan period should be revised. It has recommended a further period of three years. This suggestion is really a sound one, for the fruitful fulfilment of the programmes.

Balwantrai Mehta Committee

The Study Team for Community Development and National Extension Scheme headed by Mr. Balwantrai Mehta, has recommended in its report published in November, 1957 that the emphasis in regard to community development should be placed, without delay, on the "more demanding aspects of economic development" than on welfare activities. This indeed is a significant recommendation which must be effectively adhered to especially in view of the present economic crisis in the country. The committee has also observed that democratic decentralisation of the machinery administering the community projects alone could lead to effective rural development. This point was emphasised by the Programme Evaluation Board in their last report in the light of certain case studies of succesful centres.

One of the membrs of the team Mr. B. G. Rao has in a note of dissent recommended the abolition of the Central Ministry of Community Development. He considers it "unnecessary and wasteful." But in view of the great importance attached to community development this suggestion seems to be untenable.

Certain Criticisms

The movement has not evoked as much popular enthusiasm as was expected of the movement. Too much dependence on Government initiative and assistance is still being exhibited by the vast majority of the rural population affected by the Programme. The Programme Evaluation Board (1956) has rightly warned that unless Government deployed more resources in rural areas and the people in turn show greater initiative and self-help, a situation might arise which is bound to create serious difficulties.

An orientation of the outlook of the Community Development Officers is a prime necessity. In Kerala the Block Development Officers are called "Jeep Officers". There is not sufficient under-

standing of the obejectives and techniques of community development programmes among the specialised staff, although the movement has now been in existence for more than five years. Even Gram Seveks have failed to deliver the goods. It is high time for the officials to realise that it is a movement which is more non-official than official.

Some items of the Programme such as adult education, development of village industries etc. have not been a great success. It is gratifying to note that 26 Piliot projects have started functioning in community project areas. The result obtained through these projects will show the way in which development programmes in this vital aspect of rural life should be carried on. Some research institutes have been set up in various places. Intensive research in this line is essential. Cheap techniques of production are badly needed. Lower price and better quality are necessary to attract sufficient demand. Now many of the industries survive because of the artificial respiration of aid.

Pandit Nehru recently made a suggestion to step up food production, namely to fix a target for each farmer. I believe that the suggestion is feasible only through the Gram Sevaks, who are supposed to establish contacts with every individual family in the area and to help it to plan its production programme. For this, there must be a substantial reduction in the area and population alloted to him. The number of Gram Sevaks must be increased. The Planning Commissions' suggestion to have at least two women village level workers in a village is progressive and commendable. But, may I say that active encouragement of that should wait for some time to come.

The tendency to establish a standard programme of activities in all States and projects is not at all a step in the right direction. There should be a greater variation in the major contents of the programme and in individual items so as to suit the wide variety of social, economic and cultural conditions in different parts of the country. Activities in which the people themselves take the initiative and which could serve as a national medium of expression for them, should be given more emphasis.

Intensive efforts also must be taken to co-operate with the co-operative societies, who should assist in Co-operative farming and in the conversion of single-purpose societies into multi-purpose ones. The credit needs of the agriculturists in the project areas must be assessed by the project officers in co-operation with competent non-official agencies, if it is possible, and must do its utmost in channelling loans to the cultivators, either through the co-operative societies or through the village panchayats.

The National Extension Servfce agency should eventually be treated as the permanent and normal field development area of the State Government in the rural area rather than as some special or temporary agency. Further as the Programme grows in size and as the range of activites which it encompasses or influences increases. a great deal of the initiative in implementing it must pass to the people of each local area. As a matter of fact, transformation of the social and economic life of rural areas is essentially a human problem. It is a problem, briefly changing the outlook of 70 million families living in the countryside, arousing in them enthusiasm for new knowledge and new ways of life and filling them with the ambition and the will to live and work for a better life.

ECONOMIC CONSEQUENCES OF GROWTH OF POPULATION IN INDIA

By: **JYOTI P. SAXENA**

Introduction

RELIGION, health, making a living, organization of society etc. have always occupied human attention, but population is a modern problem. Until a couple of centuries ago there were no censuses to provide the data, and in any case there were fewer people.

The ancient civilisations – Chinese, Babylonian, Judaen, Roman and so on had censuses, but they served limited administrative or fiscal purposes. The elaborate Chinese censuses of which Marco Polo told, were not paralleled in Europe between the fall of Rome and the 18th. century. Iceland had its first census in 1703, Sweden in 1748, Denmark in 1768 and the United Kingdom in 1801. On the American continent Canada began as early as 1665, and Connecticut in 1759. In Asia, the population of India was not accurately counted until 1881, and of China until 1953; and both there and in Africa there are still many nations that have never been enumerated.

Growth of Population in India

In the ancient times, as the Puranas say, India maintained 56 crores of people on her soil.[2] Nicolo Conti writing of Vijayanagar about 550 years ago said that 'numbers of the people exceed belief. There is little more than this kind of description to be got out of the earlier writers, and any estimate of India's population before 1600 A. D. is not even as conjectural as the estimate at about this data, which was first made by Moreland, and about the tentative character of which nobody was more aware than the author. Pran Nath, Playfair, M'culloch and H. M's Stationery Office, are responsible for these earlier estimates. After 'vetting' their figures for the corrections which are necessary, Kingsley Davis arrives at a conclusion, according to which the population of undivided India was 100 to 140 millions about 300 B. C. Having risen to no more than 194 millions by 1867, India's population began to increase phenomenally in tbe decades which followed.[3] In 1881 when the first regular although incomplete census was taken, the population of India stood at 254 millions. In 1931, fifty years later, the census revealed 353 millions, representing an increase of 10.6 percent over the 1921 figure. The census of 1941 showed a total of 389 millions, showing an increase of 15 percent over the 1931 figure, or an increase of 50 millions, The 1951 census has again shown a similar increase. The figure that year reached 362 millions (361.82 millions). This represents an increase of about 13.5 percent over the population in 1941 which was 318.86 millions adjusted to the present area. Thus the population has increased by some 43 millions in the last decade, 1941–1951.[4]

Thus the population of India is not a static concept; it is a dynamic one. But the rate of increase, though high, has not been abnormal. For instance, between 1872 and 1941 the population of

1. Michael Kaser: 'Population and Poverty' published in WAY forum, Jan. 1955, p. 4.

2. Julian Huxley: 'Navaneet' (Hindi), July, 1956, p. 33.

3. The Eastern Economist Annual Number, 1951, p. 1005.

4. S. Chandrashekhar: 'Hungry People and Empty Lands', pp. 152–5

undivided India grew by 54 percent whereas that of the United Kingdom during the same period increased by 56 percent. Japan during the same time increased by 136 percent. The problem in India, thus, is not the rate of increase but the net addition to the existing population every decade. Because of the vastness in the size of the population even a modest increase of 10 or 15 percent as from 1931 to 1941 leads to a net gain of some fifty millions, which is itself the population of Great Britain or six times the population of Australia[5] or larger than the population of any European country except Germany or Russia, or any Latin American country.[6] On the basis of the last decennial increase, India's population will be increasing at the rate of $1\frac{1}{4}$ percent or 4.4 millions per year which comes to about 1200 per day.[7]

Economic effects of Growth of Population

Population, if manageable and efficient, is an asset to any nation. It is the index of its inner strength.[8] It leads to a better and fuller exploitation of the natural resources of the country resulting in greater production, higher incomes and higher living standards. But when it becomes unmanageable, it eats into the vitals of the nation and becomes rather an unmixed evil as it gives birth to so many vices like misery, disease, death and what not. It nullifies all efforts to improve the admittedly very low standards of living of the people. All efforts to increase the production of food, other commodities and services to give a better 'per capita' share to the existing population are largely frustrated by the overgrown numbers. Thus improvements in the standards of living and the growth of population become incompatible.[9] That is why no democratic government having the welfare of its people at heart could, however, watch unconcerned increasing population growth being equalised by natural calamities like famines, plagues, epidemics as once suggested by Malthus. No doubt, the Malthusian theory of population stands discredited today, but his observation that 'there is a tendency in all animated life to increase beyond the nourishment prepared for it' is truly applicable to prevailing conditions in India. Hence the gravity of the situation.

Population and Food Supply

The crux of the population problem is that it has outstripped our food supply. Acoording to the last census the population of India in 1951 excluding the State of Jammu and Kashmir and the tribal areas of Assam was 356,891,624. This would come to about 307 millions in terms of adult equivalents on the assumption that 100 people are equivalent to 86 adults.[10] On the basis of an average daily consumption of 14 ozs. per adult, the quantity of foodgrains needd by the said population would come to about 44 million tons annually.

A major question that arises in this context is as to the precise measure of the deficit in foodgrains the country must provide for. For this purpose it is necessary to assess the trends in production and to see how they compare with requirements. On the basis of available

5. Mrityunjoy Banerjee: 'Indian Food Resources & Population' published in Eastern Economist, Aug 14, 1953, p. 304.

6. S. Chandrashekhar: 'Hungry People & Empty Lands', p. 153.

7. Mrityunjoy Banerjee: 'Indian Food Resources & Population' published in Eastern Economist, Aug. 14, 1953, p. 304.

8, Gyan Chand: 'The Problem of Population', p. 4.

9. S. Chandrashekhar: 'Hungry People and Empty Lands', pp. 153–54.

10. The First Five Year Plan–p. 157.

data it is not possible to reach any definite conclusions on this point. Official figures regarding the figures of production since 1949-50 indicate, as will be seen from the table[11] below.

Production of Foodgrains
(in mill. tons)

Year	Rice	Wheat	Millets	All
1949-50	22.8	6.5	16.2	45.5
1950-51	22.1	6.7	15.4	44.2
1951-52	22.8	6.2	15.4	44.4

¾ I. C. A. R. Sample Surveys.

On the basis of these figuers the food production of India may be placed at a little over 44 million tons per year. Of this quantity, after making an allowance of 10 to 12½ percent for seed, wastages etc., the quantity available for consumption would be about 40 million tons. This leads to a deficit of some 4 million tons. And what is true of 1951 is also true of this day. These five years have made little difference. It can, thus, be taken as axiomatic that India has more mouths than it can feed.

"The Indian people are underfed. The consequence is obvious and unavoidable. Either one in every three individuals must go hungry; or what is much more easy, insidious and injurious, every one must cut one out of every three meals necessary to him."[12]

The qualitative aspect of the problem is even more frightening. It goes without saying that people not only must get adequate food, but it must contain in physiological terms enough proteins, mineral salts and vitamins as well. The major part of the teeming millions of this counry, however, cannot afford to have a diet of this nature on account of low standard of living. In fact, according to a survey by Sir John Megaw, the then Director-General, Indian Medical Service, in 1933, in India as a whole, only 39 per cent of the population could afford adequate diet, 41 percent were poorly nourished and 20 percent were badly nourished.[13] The table below[14] compares the dietary position In India with that in some other countries :

11. India at a Glance-Orient Longmans, p. 281.

12. Prof. K. T. Shah: 'Wealth and Taxable Capacity of India', p. 252.

13. J. Megaw : 'An Enquiry into Certain Public Health Aspects of Village Life in India', pp. 8-11.

14. The Eastern Economist Annual Number 1956, p. 987.

DAILY PER CAPITA INTAKE OF CALORIES AND PROTEINS

Country	No. of Calories		Proteins in grams,	
	Pre-War	1954-55	Per-War	1954-55
Denmark	3420	3300	91	89
France	2870	2785	97	96
Germany	3040	2945	85	77
U. S. A.	3150	3090	89	92
U. K.	3110	3230	80	86
Japan	2180	2165	64	58
Egypt	2450	2390	74	69
Australia	3305	3040	103	91
INDIA	1970	1840	56	50

And this mars our quality; decreases our efficiency so much so that people are forced to remark that 'we do not live but only exist.'[15] We try to stifle appetite rather than to meet it properly.[16]

Population and Agrarian Economy

There is no gainsaying the fact that agriculture is the mainstay of India's prosperity. The people depend upon this primary industry for a living, with little development in the secondary industries of manufacturing. Among the gainfully employed population, agriculture in India claims the largest percentage. It is, therefore, evident that agriculture is the fundamental basis of the national structure of India, and its important role in our economy cannot be over emphasized. In a nutshell, our economic progress is inextricably linked up with the development of agriculture.

Why is it, then, that Indian agriculture, judged by the test of productivity, has remained unprofitable, backward and unprogressive and fails to obtain increased yields? Why is it, then, that agriculture in India is only 86 percent as efficient as the average production in the important countries of the world, but compared with most of the European countries, scarcely more than 50 percent as efficient? [17]

The reason, of course, is 'too many people on the land.' One of the peculiar features of India's economy is that her population has been increasing at an alarming rate. But in the absence of progressive industries, the majority of the population had to fall back upon agriculture as a means of earning their livelihood. Thus the pressure of population on land has considerably increased which, in its turn, has caused a low yield per acre.[18] The following figures show the volume of population that each acre of our land has to support: there have been 31 persons per 100 acres of farm land in Poland as against 24 in Czechoslovakia, Hungary; 30 in Roumania; 42 in Yugoslavia; 6 in the United Kingdom and 148 in India.[19]

It is, thus, clear that our land supports a greater number of people than that in other countries. In other words, due to relentless pressure of population, those dependent on land are greater than what it can conveniently support. And this gives rise to severe agrarian poverty and increasing deterioration of agricultural lands. After all, high pressure agriculture would naturally be a 'deficit economy.'

Thus the pressure of population has not only depressed the physical productivity of our agriculture; it has also adversely affected its character and the money return obtained from it.[20]

Population and industry:

Yet another projection of India's staggering population falls on her

15. Chowdhri Mukhtar Singh: 'Rural India, p. 5.

16. S. Kesava Iyengar: 'Studies in Rural Economics'.

17. Rajnikanta Das: 'Industrial Efficiency of India', p. 29

18. The following table gives the productivity of principal crops in some selected countries:

Country	Yields in lbs. per acre			
	Paddy (55)	Barley (56)	Wheat (56)	Maize (55)
Japan	4293.7	2157.5		
China	2221.2			
Thailand	1274.5			
Burma	1444.8			
Denmark		3148.9		
U. S. A.		1297.0	1159.82	2230.6
France		1713.1	1818.06	
Canada			1438.44	
Italy				2322.4
INDIA	1140.5	748.4	639.86	633.7

18. Source: Eastern Economist Annual '56, p. 967

19. J. E. Russel: 'Agrarian Problems from Baltic to Aegean' quoted by C. B. Mamoria in his 'Agricultural Problems of India' p. 27.

20. D. Ghosh: 'Pressure of Population & Economic Efficiency in India, pp, 51-52.

industry. It takes two routes. One via agriculture and the other through efficiency of labour. Agriculture, as we all know, has 'QU' attachment with industry. It ensures the supply of raw materials to the indurstries which, in their turn, create, a demand for agricultural produts and increase the income of the farmers.

> "One might consider industrialisation as one chapter of agricultural reconstruction, or might treat the improvement of agrarian production as one chapter of industrialisation. What matters (in regard to under-developed agrarian economics) is to remember that the two are inter-connected parts of one problem."[21]

But, as hinted above, population has effected our agrarian economy with relentless pressure for those dependent on land are greater than what it can conveniently support. This tells upon the manufacturing industries which are embedded in agriculture.

It is a trite saying that standard of living, efficiency of labour and industrial development go hand in hand. Higher standard of living increases the efficiency of labour which, in its turn, leads to greater strides in the industrial field. But, unfortunately, on account of 'too many people and too little capital' there are few civilized countries with such a low living standard as ours.[22] One example quoted here would suffice to prove how low our standard of living and dietary standard is. The major part of the teeming millions of this country is hardly able to procure even the bare necessities of life so as to eke out their animal existence. That is why the Indian factory worker produces less per unit of time than the worker in the West or in Japan,[23] and is more of a liability than an asset to the industry. It is thus evident from the foregoing facts that population has retarded the growth in the industrial sector as well.

Population and Unemployment

The ever increasing population of the country is also responsible for the growing unemployment among the people-unemployment which has been recognised as a chronic disease, a running sore in the body-politic.[24] Broadly, the position is that except during the war unemployment has been steadily increasing because economic activity has failed to keep pace with the increase of population. Assuming an increase in population of 4 millions per annum, there is need for providing additional employment for 2.2 million adults, men and women, if at least the 'status quo' is to be maintained. Even if the Planning Commission's optimistic assumptions of additional employment are fulfilled and even if the greater part of the adult women are left out of account in planning gainful employment, we will still be left with the prospect of ever-increasing unemployment,[25] for the simple reason that while the numbers in India grow at the rate of 4 to 5 millions per year, the jobs do not increase even by a fraction. The spectre of unemployment, therefore, haunts our newly-won freedom with threats of violent upheavals.[26]

21. P. N. Rosenstein-Roden : 'Problem of Industrialisation of Eastern and South Eastern Europe, p. 202.

22. Dr. J. M. Kumarappa : 'The Economic Background', pp. 19-20.

23. D. Ghosh : 'Pressure of Population and Economic Efficiency in India', p. 35.

24. Sohan Raj Mohnot: 'Indian Economic Policy', p. 188.

25. Dr. John Mathai: (Hindustan Times, Aug. 30, 1953.)

26. Prof. S. N. Agarwal: 'Unemployment-Enemy Number One' (Hindustan Times)

Conclusion :

Thus, it is a tragedy of the greatest magnitude that population in India which, as a source of power, would have proved to be a great asset to the nation, has failed to deliver any good. Instead, it has come to stay as a drain to our resources. The need for a positive policy for India based on what is best for the Indian people, both from the larithmic and eugenic point of view, therefore, cannot be over-emphasized. Until this is done, we shall at best achieve only an insignificant improvement in our standard of living irrespective of the number of plans we may execute.

ECONOMICS IN RETROSPECT

By : **G. JAYACHANDRAM**

THE solution of economic problem is always a voyage of exploration into the unknown, an attempt to discover new ways and methods of doing things better than they have been done before. This must always remain so as long as there are many economic problems to be solved at all, because all economic problems are created by unforseen changes which require adaptation. The economic system is just one of those organisations which man has learned to use (though he is still very far from having learned to make the best use of it) after he had stumbled upon it without completely understanding the intrinsic values of the system.

In his preface to the Economic Essays, R. P. Harrod explains well the efforts of a group of Oxford Economists in prying out the economic realities from a handful of entrepreneurs in strictly confidential interviews. Observe what he says : "Many of those (Economists) present were at that time actually engaged in propounding in class-room the very doctrines about interest rates on the one hand and about imperfect competition on the other that the businessmen were upsetting. The economist's partiality, to the extent that they had one, was all on the side of getting the entrepreneurs to conform the doctrines that were their stock-in-trade with pupils. If these were upset what should they put in their place? Every effort was made to coax out of the entrepreneurs answeres favourable to what were then established doctrines. If a contrary result emerged, this was not in conformity with, but against the wishes of those conducting the interviews".

As we have seen, often is the economic reasoning obscured by the fact that normative principles are not introduced explicitly, but in the shape of generalities which oppose commonly the realities of life. When the discussion is thus shifted from the normative to the logical plane harmony recedes into the background, while conflict is imposingly pushed to the forefront. Conflict can only be stated, and not solved by discussion.

Definitions are tools and used in order to observe and analyse reality. They are instrumental and can never be justified in all conceivable context of economic reasoning and analyses. The search for truth, the quality of straight thinking involves eagerness to secure all available evidence, accuracy and discrimination in the handling of that evidence and impartiality of view-point. In his search for truth, the economist

wedded to the principle of straight thinking ignores or supresses no fact, regardless of how violently it may militate against a favourite hypothesis or maul a settled body of conclusions. Originality is the reward of straight thinking and largely it consists in the discovery or analysis of new data by old or new methods, or in the manipulation of old facts by some new technique, or from some fresh point of view.

It is the primary task of straight thinking to eliminate absurdities and incoordinated ideas from the picture of a simplified economic system and to elicit the factual conditions around which the system moves. When the principle of straight thinking is thus applied after cautious omissions and commissions in analysing an issue, there certainly emerges an intellectual solution constructed to its specifications where there is stout observance of its rules of behaviour. Overlooking these aspects the economist stands constantly in danger of reaping the terrible reward of his neglect and disobedience to the rules enlightened by thinking straight on an issue. An economist whose thinking is distorted by the prejudiced view or biased ideas, will find impossible to follow all the ramified economic effects of even the simplest event.

Men cannot live without an economic theology, and economic thought is not devoid of some rationalisation of the abstract and seemingly inchoate arrangement which provide men with a livelihood. That economic thought as conceived and recorded by the economists of our and prior centuries is comprehensive and internally consistent cannot be declared unhesitantly. Nor by asserting that it was a discription of reality, we could use it as the justification of the existing order. For the straight thinking economist it could be a goal, a beacon to mark the path of needed change in outlook and conception. Both could be united in the central faith atleast so long as nothing happened to strain unduly the economist's capacity for thinking straight.

The qualifications and especially the warnings that there had been an abstraction from reality are violently supressed or incidentally neglected. To this day, the abstraction largely undiluted and unqualified is the principal residuum of the considerable expense that has gone into the effort to rationalise the subject of economics. Consequently the preoccupation of the economists cease to be with interpreting reality and came to be with building a model economic community with its social regour and political complexion. But one thing is most certain : the birth development and subsequent career of an idea should unfold within the range of straight thinking, if it should ever last and maintain its logic, cohesion and integrity.

Economic analysis, fundamentally biased and built with the sole purpose of supporting any ideologies, will stand self condemned. In short economic policy should be explained by the economic analysis and not economic analysis presupposed by any economic policy. The birth of policy should not be intimidated by an analysis, the basis of which grievously lack any conceptual scheme. Analysis should only be instrumental in bringing about a policy. The significant conclusion is that when the policy is presupposed and an economic analysis is built irrespective of its specifications in recommending such a policy, the analysis which has no concrete bearing, but only the seeming corrospondency to the policy, will nullify the operational efficiency of the economic system that emerges in response to the implementation of such a policy. The significance

of the analysis lies in its appeal to the policy recommended by it; the failure of the policy is best assured when there is direct appeal of economic policy to that of analysis.

Economic policy is concerned with the clear statement of the scope, the methods, the objectives of economic action when it attempts to be rational and efficient. It is clarified as it begins to understand the similarities and relationships of phenomena, and goes beyond an immediate situation to examine its broader theoretical implications. Economic analysis casts the decision in clear language and provides criteria which permit the economist to check its gradual translation into practice.

Economic analysis must be critical towards its own methods, prevent them from acheiving mastery over economists. It has often been said that the economic society, as soon as it is viewed as a product of economic associations, loses its individual features. It belongs to them not they to it: it is subordinated to the facts of competition, enviornment, institutions, psychological type and it is more and more adapted to these categories. This is particularly noxious at a moment when the divergencies of economic activities are great and the economic society is prepared to meet them half way by transforming itself from an adept mechanic body into an adaptive analytical tool, by sacrificing its potentialities for the sake of readiness and ability to conform to and gain influences in such flexible movements. Economic analysis may inadvertently reinforce these tendencies if it does not point to the necessary limitations involved in its own approach.

The most direct manner of interpreting economic change is by focussing on the chief factors responsible for the movement of economic activities and to treat them as the causes as well as the motives of the activities. Economic issues increasingly demand an objective presentation of the various alternatives. Analysis and experiments are needed for economists to know the area of free economic choice. The modern world does not diminish great imparities between economic issues, but it imposes on the contending economic institutions the discipline of organised action. More and more economic institutions constrained to translate general priniples into verifiable propositions.

A differential application of standards and policies, of concepts and tools, is the motto as economic analysis advances. To a large extent the analysts of economic phenomena are restating truth, the conceptual scheme of which has been disarranged or forgotten in the course of development. General ideas in systematic exposition may reduce the sensibility of the observer. Abstractions will blunt perception and flatten expression, will blur conception and slur impression; and the economist easily finds himself betrayed by the crudity of the language. The result of such an investigation frequently distracts the economist from an appreciation of the field sin generis.

The ideal economist must possess an economic philosophy which takes the whole economic scene into account and the ideal economic condition is one which allows the fullest play of economic phenomena to the variey of economic experiences. A practical consequence of the process of economic conditioning of thought is that the mind is always ready for a number of defence mechanisms: the theoratical conviction and the practical solutions offered being the criteria.

In broader outlines, economic analysis is the sum total of organised reflections on the nature of economic behavior in

toto and its relation to other learned disciplines. This definition is not consistent when economics is concieved as a matter of opinion and not of analysis. At this point it is well to remember that while economic necessity is a human product, humanity is not the copious creation of economic institutions. The world is not the free product of human imagination, The task of economics is to make economic analysis and policy, the two necessary conditions for the control of economic institutions, consistant with each other. It is the contention of Eric Roll that more than good economic policy goes to the making of a prosperous community and more than good economic analysis goes to the making of good decisions in economic policy. The appropriateness and logical necessity of economic measures suggested by the policy is tested by the capacity of those measures in increasing the social welfare and economic efficiency of the community. When the economic measures are implemented in such terms as to make the established doctrine relevant to their solution, the net effect of the concentration of attention upon these measures would narrow the gap between theory and policy.

The analytical aspects of an economic system are empty until given concrete meaning by economic purposes; the purposes or ends of economic system are helpless without form, order, policy. In short neither economic analysis nor policy is possible without the other. The question of economic analysis does not arise when there is no economic necessity; economic policy is based on a scheme of economic actions, namely economic analysis. Neither is paramount. Each is an indispensable element in economic knowledge. Just where to place the emphasis, bias or preference is a matter of choice. The gaps in knowledge, however cannot be traced to lack of a scientific approach. Economic knowledge is acquired by excluding 'value judgements' and mere matters of opinion from analysis; diagnosis, prognosis and prescription are based upon as complete and objective analysis as is possible. There are no rules for judging values, and it is the worst of errors to attempt to make rules–beyond the rule to 'use good judgement'; but it is equally false to assert that one opinion is as good as another, that de gustibus non est disputandum.

Throughout these various investigations and especially in the various initial efforts to formulate the theoretical foundations of economic policy the economist who recommends such a policy should not assume the burden of criticism as be negative in its emphasis: consisting for the most part of destructive criticism of prevailing concepts and vigourous denunciation of previous theories about or formulation of economic laws that had emphasised the formal and systematic organisation of the existing principles.

The economist who wants to realise truth and the central idea of economic behaviour should not develop a tendency to use logic alone with insufficient concern for any but the formal character of the premises. His own aim should be an adequate though thus far unobtainable, logical structure. He should not attack consistency but inadequately based rationalisation; not the syllogism, but the misdirected use of the syllogism and the content of the particular syllogisms.

It is critical of the power of logic exclusively to control analysis: first, because logic has been, and probably will be unable to do so; and second, because to improve analysis more than logic is necessary unless logic operates from

premises - to - be - formed as readily as from premises-in-stock. Descriptively, it denies that logic in fact militates against or control analysis. Even as an ideal, the value of logical form is limited in that techniques require a flexibility to adapt analysis to new policies, especially in a dynamic world. Analysis demands not less logic but more intelligence in regard to the methods and premises involved in the use of logic.

The tendency to use a deductive logic mechanically and the tendency to use pernicious doctrines preponderately as premises in the interpretation and illustration of economic behaviour and events are the greatest obstacles which analysis finds to better understanding and effective control of policy. Basically the analytical criticisms are not of policies, but of what happens to plicies when they are implemented taking no cognizance of the specifications laid down by the analysis and when the role of policy as instruments is insufficiently emphasised. A most absorbing survey of analytical studies would indicate that the analyst's objective is not the elimination of the concepts, but on the contrary an emphasis on the multiplication of concepts and working catagories. But the emphasis includes a realisation that policies borne out of analyses are instruments as well as ends of judgements, and that as instruments and as ends they have an economic relevance and dimension to which they are initially accomodative and to which they remain in conformity, as long the incorporating ideals of economic behaviour are guarded against illogical inroads.

The reader might wonder that I have ventured to state only the problems as they are and not solutions in detail. In my opinion these are not *purely* economic but philosophical and psychological problems not capable of immediate answer, but they offer interesting experimental possibilities.

WORK TOGETHER FOR A BETTER TOMORROW

By : **H. R. SOOD AND B. L. ANAND**

THE first five-year plan in India has proved a laudable success. The ardent zeal with which the people worked and offered co-operation have fortified the confidence of the Planners that given an opportunity the people of this land would cheerfully undergo great sacrifices and shoulder heavy responsibilities for achieving the targets set out in the Second Plan.

To ensure a balanced economy in our country, it has been very recently decided that the targets for the additional food production should be enhanced from fifteen percent to twenty eight percent. It is only the achievement of these targets that can lead us to our goal of producing liberal exportable surplus and also a close interdependence of Agriculture and Industry as envisaged under the present plan. To achieve these revised targets, great stress is to be laid, particularly on better irrigation facilities, crop protection measures, use of manures and chemical fertilisers, better seeds, improved implements, clean cultivation, soil conservation and animal husbandry programmes. Our Government have launched various schemes in all the States embracing the above programmes and it becomes obligatory on our part to put in our best efforts to see

that these schemes which are a key to our prosperity and happiness are successfully carried through. How we should co-operate and put in united efforts in carrying out the schemes successfully is an important question and is discussed below :—

1. Plant Protection Measures

The cultivators should organise regular compaigns against the pests and diseases of crops. The common diseases and pests of food and cash crops such as rusts and smuts of wheat ; Red Rot, smut, and borers, pyrilla of sugarcane, boll worms and leaf roller in cotton, late blight of Potatoes and a number of viruses etc. can be successfully controlled by growing disease resistant strains, better cultural practices and taking to spraying and dusting of crops with insecticides. All the farmers of a particular locality or village have to co-operate with one another in order to achieve the desired result, otherwise our efforts and the money spent are likely to go waste. Even if a progressive farmer uses an insecticide or adopts other measures to combat the attack of some insect pests or disease in his field but if his neighbour fails to do so, the pest or the causal organism from the fields of the latter will attack the crop of the progressive farmer again and his efforts may prove a failure. Thus insect pests and diseases can only be controlled or eradicated if joint efforts are put in by all farmers of the locality. Special compaigns or drives for such purposes usually prove very useful.

In many areas, Mud Kothis or bins are largely used for storage of grains by the ignorant and poor farmers. Such receptacles harbour insects and rodents which damage the produce and cause heavy losses. Pucca stores or Bins should be constructed on co-operative basis which should be properly disinfected and fumigated before storing the produce. Empty bags should be kept in boiling water for a few minutes if the grain is to be stored in bags. Hence it is obvious that only the co-operative ventures yield tangible results and not the isolated efforts of the individual growers.

2. Improved Seeds and Implements

Improved varieties of cereals, fibre crops and pulses suitable for different localities and climates have been evolved. Types which can be grown successfully in one tract may not necessarily do well in other areas. As such, it becomes important to grow the improved strains in the respective zones where they give good yields. These improved strains out yield the local varieties by 5-10% and also command premium in the market. In the use of better seeds also the farmers have to co-ordinate their efforts. To maintain homogeneity and purity of the produce, the village community should launch a joint programme for roguing the crops, otherwise it is not possible to obtain pure seeds. Threshing operations, storage of the produce, stocking of produce in godowns etc. if taken up jointly, save time, labour and capital of the farmers. Similarly co-operative marketing can get them correct weighment and right payment for their produce. Likewise the improved seeds of vegetables and fruit plants should be jointly arranged in order to have a better stuff at reasonable rates. The tractors, cultivators and other heavy implements which the individual cultivators cannot afford to buy individually can be purchased jointly. Tube wells, pumping sets and drainage channels should also be constructed collectively.

3. Clean Cultivation

There is no denying the fact that presence of weeds both directly and indirectly reduces the yields of crops by

robbing them of water and plant food and also by harbouring insect pests and diseases. Some of the weeds multiply very rapidly because of the large number of seeds produced and their further rapid dissemination to the adjoining and far off localities. To combat the problem judiciously, the farmers should organise weed eradication compaigns. Unless all the farmers of the locality jointly and simultaneously clean their fields, road sides, water channels, canal sides, railway lines and other vacant places the eradication of these obnoxious weeds is not possible. Hence what we need is the genuine co-operation from all the neighbouring cultivators.

4. Soil Conservation

Soil conservation is equally important. The entire village community has to work together to ensure controlled grazing, plugging of gullies and water streams, afforestation and building of embankments in the fields across the slopes. The farmers should praticipate actively in van Mahautsava celebrations and plant more trees every year. The trees besides affording a canopy to the loose soil, give us a good amount of fruit, timber and other products. The ryots should see that all the waste lands, paths, road sides and boundries of the fields are planted with trees. Every one in the village has to see that the saplings planted by them are properly looked after and protected from the cattle and men. As a matter of fact after care is more important than planting.

5. Use of Fertilizers and Manures :

It is now an established fact that proper and modern Agricultural practices coupled with adequate quantities of manures and fertilizers help us in getting enhanced yields from the soil. Manures and fertilizers replenish the soil with food materials which are constantly being removed by the crops. The farmers should jointly indent the fertilizers on co-operative basis. Similarly for digging of compost pits and composting the waste material, joint efforts are necessary.

6. Animal Husbandry and Poultry Development

The programme under this head aims to improve the local breeds of cattle, sheep, goats, pigs and poultry for the production of milk, meat, wool, bristles, skins and eggs etc. Our national Government have provided Rs. 56 crores for these schemes in the Second Five-Year Plan. The farmers should co-operate with the Departments concerned in the implementation of these programmes. They should replace the sires of unknown pedigree by proven sires or stud bulls. Animal diseases and epidemics cause enormous losses annually in our country. The spread of epidemics and contagious diseases in cattle and poultry can successfully be checked and controlled if joint efforts are made. Co-operative Dairy Farms should be established in the interest of dealers and consumers.

In short, it is the corporal call of the hour that the people who are the principal beneficiaries of the new schemes under the plan, should come forward with zeal and enthusiasm, imagination and forsightedness, initiative and drive. Only the close co-operation, joint and concerted efforts of the farmers, extension workers, and the village Institutes like panchayats, can lead us to a better tomorrow. And it will contribute a sound stability in our social and economic life as adumbrated under the Second Five-Year Plan.

CHANGING PATTERN OF LAND REVENUE IN INDIA

By : **Prof. BHAGWAT SWAROOP**

IN all countries undertaking large-scale development, the question arises-what contribution should the agriculture make towards the financing of industrial development. The experience in this respect has been that, far from agriculture absorbing capital from other sectors, it has been the farmers who have been forced to finance the industrial revolution. Numerous examples are there-recent ones are provided by the Gold Coast, Burma and Uganda, three countries whose governments have with-held from their farmers a very large increase in the price of farm produce since 1945 to finance economic development in other sectors of the economy. (Arthur Lewis in 'The Theory of Economic Growth 8).

It is in this context that the question of land revenue of late has attracted considerable attention. It has been increasingly realised by our planners that land revenue as an item of contribution to the national exchequer has not been keeping pace with the growing needs of development. In fact the burden of land revenue has steadily and progressively tended to decline if the revenue receipts are compared with the changes in the price levels of food-grains. This is also confirmed by the fact that the proportion of land revenue collected, to the total revenue has been increasingly declining as will be seen from the table given below :-

Receipts from Land revenue as proportion of total revenue (Centre and States):

1850-51	66.5%	1911-12	31.3%
1871-72	42.8%	1938-39	16.1%
1891-92	36.5%	1953-54	8.6%

Expansion of transport facilities and irrigation, growing importance of commercial crops have also combined to contribute to this reduction. It, therefore, is only obvious that land-revenue system calls for an urgent reform.

Before analysing various measures of reform emanating from different quarters, as part of the back-ground, growth of land-revenue and certain recent developments may be taken into consideration briefly.

It was during the reign of Akbar that Raja Todar Mal laid the foundation of a system which furnished the basis of land-revenue policy for generations thereafter. With the advent of British rule in India came the permanent settlement which had as its basis more of administrative considerations than economic ones. Further territorial expansion in the Company's rule presented a different problem. In U. P. and Punjab there were no local chiefs or large farmers. Settlement was concluded with the village communities and the villagers were held jointly and severally responsible for the payment of revenue. In other parts like Madras the land revenue was directly settled with individual ryots. Thus a general pattern of land-ravenue settlement was evolved consisting of two different systems of settlement :

1. Permanent or those in which the assessments was fixed in perpetuity.

2. Temporary or those in which the assessment was fixed for a definite period.

Though the land revenue settlement and assessment broadly follows the description given above, the development of different systems has not been on the same lines. In calculating the

land revenue payable to Government different States adopted different methods such as net assets or economic rents on net produce or annual value, or rental value, or capital value or gross produce.

This disparity has further been widened by certain recent developments. Some of these have set new and important tasks to the revenue administrations of the States such as integration of Princely States. Others have involved significant changes in agrarian pattern of the country and therefore in the land revenue system as well. These include abolition of the intermediaries, the proposed restrictions on individual holdings and other measures intended to provide, greater security and additional rights to the tenants.

Yet another factor contributing to this disparity has been the postponement of re-settlements occassioned by the abnormality of times. Settlements could not be taken up for revision because of the steep fall in prices which occured in the early thirties and later because of the inflationary conditions during the war and later still for want of trained personnel. Revision during the depression would have meant loss to the Government and if done during inflationary period it would have placed a heavy burden on the farmers; it was therefore, realised that old settlement procedure which fixed the revenue for ensuing thirty years was no longer suitable. In consequence different State Governments adopted different measures in connection with the assessment and adjustment of land revenue. Some of the measures adopted are mentioned below:—

1. Sliding scale Assessment-under it, the maximum rate payable are determined on the basis of commutation price and the rates charged are correlated with the ratio that the general level of the prices of staple products bear to the commutation price during the marketing seasons of the two preceding harvests.

2. Surcharges on land revenue-some States have imposed surcharges on land revenue either on a flat rate or on the basis of holdings or according to the amount of land revenue paid.

These interim measures of taxation do not however, yield any basis for formulation of future policy which must take into account the twin consideration of economy and incidence. In this regard various proposals were examined by the taxation Enquiry Commission:

1. Proposals designed to completely replace the land revenue included :

(a) agricultural income tax.

(b) a combination of agricultural income tax with a system of low flat rate of land tax.

(c) a sales tax on the agricultural produce at the point of sale by primary producer.

2. Proposals to modify the present system of assessment and re-assessment of revenue so as to secure (a) a lower burden on the payer in the event of prices going down and (b) a larger revenue to the Government in the event of prices going up - a sliding scale of revenue correlated to the variations in prices.

3. Yet another set of proposals refer to surcharges on land revenue. It is intended that while the present system may remain in tact, larger revenue may nevertheless be secured for Government by surcharges on appropriate basis.

As to the first set of proposals the Commission has not found them effective as substitute for land revenue. Considering that the number of holdings under 5 acres to the total holdings is more than 50% while those under 10 acres account

for 75%, the agricultural income tax which presupposes a certain limit for exemption would be inadequate as substitute for land revenue from the point of view of revenue to the State especially now that land resources will be further diffused as a consequence of reforms.

Low flat rates of land revenue combined with agricultural income-tax has, as one of its advocates, Shree T. T. Krishnamachari. On June 30, 1957, he is reported to have said that the State Governments should substitute the existing land revenue system with an agricultural income tax and small owners be exempted and a small levy in the form of quit rent be imposed instead.

A low flat rate unless it be very low involving considerable sacrifice of revenue will be in-equitable in view of the wide disparity of the land and the manner of its cultivation. There are other difficulties also which would creep in with regard to water charges. The suggestion therefore, is hardly tenable.

The last substitute for land revenue in the form of sales tax has also not found fovour with the Commission in view of the farmers' difficulty of keeping accounts of their sales. This ground of refusing any consideration of sales tax on all primary agricultural producers is most unconvincing part of the recommendations made by the T. E. C. The future policy must take into account that farmers will not remain uneducated for ever which it appears to have been the view. In fact, there are measures through which this difficulty can be overcome.

The second suggestion of Shree T. T. Krishnamachari about Governmental monopoly of procurement of food grains can be taken up in this context: or a well functioning network of Co-operative Marketing Societies can undertake the entire sale and thus help to overcome the only difficulty raised by the T. E. C. The chief ground of justification of this suggestion is that incidence of such a tax as distinguished from that of land revenue will be appropriately heavy on the larger land-holders while the small land owner, to the extent his crop is consumed and not sold by him, will not have to bear the tax at all.

Before concluding this article it may be of interest to make an appraisal of the recommendations (and the assumptions on which they are based) of the T. E. C. in regard to the system of land revenue.

The recommendations are divided into three heads:—1. Basic pattern 2 transitional problems 3 Administrative matters. I shall however, be content to analyse the Basic Pattern and the scheme of standardised Assessment which form an essential part of the pattern.

Stressing that settlements and resettlements at different times in different parts of the country with hardly any uniform basis have resulted in considerable disparity, further aggravated by the imposition of surcharges; and considering the resettlements hardly possible, the commission has recommended that:

(a) the present levels of assessment should first be standardised over the State as a whole and
(b) the standardised assessment then revised, State wise or region wise at reasonable intervals.

For standardisation the Commission has recommended that all the settlement units in the State be divided into four catagories (in view of the changes in the agricultural price levels); of these catagories the earliest would be made to bear an additional amount of 25% and the latest none at all.

Such a measure is no doubt calculated to narrow the disparity as may have

been caused by the differences in the times of settlements and re-settlements but how can it at all influence the disparity on account of the difference in methods of assessment, is beyond all comprehension. Broadly however it may be accepted as a simple device to reduce the disparity for an interim period till a definite policy of land tax may be evolved.

The weakest part of the recommendations concerns about the 'Revision of Standardised Assessment'. It has been suggested that the revision be undertaken decennially in terms of the standard ised assessment which in itself lacks an adequate standard. Through the composition of price-index with current period as the ten years immediately preceding the revision and the base as the period of ten years preceding the previous revision. Changes in the land revenue would be made in certain specific proportion to rise in prices. The index has to be made only about the main food grain cereals the changes in the price of which have been assumed to be followed by other agricultural prices.

Even if this contention that the prices of different agricultural products follow the trend of changes in the price of main crop, the basic fact remains that price can never form an adequate basis of land revenue in as much as the changes in price do not correspond with the changes in the income of the farmer which is ultimately subjected to tax. In the very nature of agriculture there are elements which do not enable the farmer to profit proportionately in the event of a rise in the agricultural prices and do not prevent him from sustaining losses out of all proportion to the fall in agricultural prices. That renders the price approach of the T. E. C. fundamentally inadequate.

Only by making an income approach a suitable system of land tax can be evolved. But the task of assessment of income of the farmer is little short of an impossibility in view of the sheer magnitude of the task. Then the question of the cost of cultivation is equally difficult to account for.

Thus the only fair and simple way-out lies in the imposition of sales tax at the primary level combined with the State monopoly of procurement of food grains or an all embracing network of Co-operative Marketting Societies through which alone the sales of agricultural produce be conducted.

This however, is not to entirely discount the usefulness of measures like agricultural income tax and surcharges. They can indeed be retained for appropriate levels of incomes and specific purposes.

MIXED-CROPPING IN INDIA

By: **FRANCIS V. THADIKARAN**

'MIXED-CROPPING' generally means the cultivation of two or more crops in the same field at the same time. The method popularly adopted is one in which the seeds of different crops are mixed together and sown broadcast or drilled in different lines. Thus *mixed-cropping* which makes the fullest use of *arable land*, differs from *mixed-farming* where two or more complementary or supplementary enterprises are combined together, for instance, pisciculture, sericulture, lac-culture, dairy farming or poultry farming with agriculture so as to

make the fullest use of *every class of land* available, for example, meadows and pastures and other classes of land not suited for crop cultivation.

Mixed cropping enhances the intensity of arable-land use, makes a balanced use of the various manurial elements present in the soil as well as in the manures and artificial fertilizers applied. This kind of diversified-crop culture also brings about a better balance between the needs of the family for farm-grown commodities and the available cash. Eventhough the need for such self-sufficient farming no longer exists, mixed-cropping still holds good in areas of uncertain rainfall, for the cultivation of crop-mixtures is found to be an insurance against complete failure of crops in the face of water scarcity, Dr. Voelkar touring South India towards the close of the nineteenth century, noticed with appreciation the system of mixed-cropping and commented that it is a method peculiarly developed in India.

The nature and number of crops mixed together differ in different areas. The following are among the popular crop-mixtures :

1. The seeds of horsegram (Dolichos biflorus), blackgram (Phaseolus mungo), greengram (Phaseolus radiatus), gingelly (Sesamum indicum), and cotton (Gossypium) are mixed together and sown broadcast or drilled and round about the field castor (Ricinus communis) and sorghum (Sorghum vulgara) are planted one after the other. Each crop is havested as it matures. This is widely practised in areas of red soils and under conditions of adequate rainfall.

2. Cotton is generally mixed with greengram and maize (Zea mays) or sorghum in the alluvial soils. In some places these crops are grown in different lines. In the cotton-greengram-maize mixture cotton gives an yield of 250 pounds (seed cotton) and greengram and maize 150 pounds and 500 pound respectively. The cultivation of Uganda-I cotton in the mixture showed an increase in yield up to 50 pounds of seed cotton over other varieties (e. g. Cambodia) without adversly affecting the yield of other crops.

3. In the Eastern coastal districts of South India where the North-east monsoon gives rain during the period from October to December, a large number of crops with a wide range of habits and duration such as paddy (Oryza sativa), sorghum, redgram, maize, gingelly, castor and cotton are sown at the same time. This is common in the Andhra state. But where water is available in plenty, paddy is cultivated as a pure crop.

4. In the Coimbatore district of the Madras State, cotton is grown mixed with setaria (Setaria italica) or horsegram, but subsequently it is found that cotton-setaria mixture gives greater yields than cotton-horsegram mixture. Here the seeds are drilled alternatively with one row of cotton and two of setaria. This mixture occupies the land for nearly 140 days and gives an average yield of 100 pounds of cotton lint and 500 pounds of setaria. This is the experience in black loams, but in areas where the black soil is more fertile and enough water is available cotton is cultivated as a pure crop.

5. A mixture of groundnut and castor is drilled in lines where groundnut is a low (spreading) crop and after the harvest of groundnut, seeds of horsegram are drilled in the standing crop of castor. This practise is prevalent in the Mysore State.

6. In the Madras State, groundnut is grown with a wide variety of crops under irrigation. Here the main crop of groundnut is mixed with sorghum, redgram and blackgram and in some districts (e. g.

North and South Arcots and Salem) lablab (Dolichos lablab) is also included in the mixture. This crop-mixture occupies the land for nearly 200 days and is succeeded by a pure crop of horsegram or gingelly. In the Coimbatore district castor is planted on the borders when the first mixed crop is sown and is harvested along with the second pure crop. Groundnut is sown mixed with other crops only in the irrigated areas whereas in the unirrigated tracts it is raised as a pure crop. The yield of groundnut is 700 pounds when cultivated as a pure crop and 450 to 500 pounds when grown in the mixture in which the other crops on an average yield 200 pounds each.

7. The inclusion of legumes in crop-mixtures is found helpful to maintain the fertility of the soil and in the Tanjore district, Madras State, paddy is grown mixed with nitrogenous plants like Daincha (Sesbania aculata). When the paddy crop is harvested, the leguminous crop is 'hogged down' for the benefit of the succeeding catch-crop. In some areas the leguminous crop is cultivated as a pure crop and is ploughed in before the main crop comes to the field, while in some other places crops like Sesbania and Gliricidia are grown only on the bunds of the main field.

8. In well irrigated garden lands different kinds of vegetables including chillies (capsicum annum), ladies finger (hibisus esculantus), peas (pisum sativum), gourds and beans are grown in a mixed fashion. Sometimes leafy vegetables also find a place in the mixture. In the Malabar district tapioca (manihot utilissima) is planted on the borders of vegetable gardens but this in some places is replaced by pineapple (ananas sativus) the thorny leaves of which have the singular effect of a barbed-wire fence. In the Kerala State, groundnut, chillies and peas are cultivated on the bunds in between rows of plantain seedlings and are harvested before the latter become large and spread their leaves. The greatest degree of diversification of plants on the smallest possible parcel of land is seen in the case of vegetable gardens in the Kerala State where the soil is fertile and rainfall (South-west monsoon) is assured and adequate.

Market gardening is generally found in and around cities and populous towns which provide a ready market for the bulky and perishable vegetables. Under this sort of vegetable culture the land is heavily manured and well irrigated; the plants occupy the land all the year round; the intensity of culture is high; the yields are greater; and monetary returns are considerable.

9. Another kind of crop-mixture widely cultivated in the Southern States of India is that maize is planted in January and groundnut seeds ars dibbed in the standing crop of maize in March. Here the combined returns from the mixture are greater than that secured from any pure crop grown in the same field. In the districts of Coimbatore, Salem and Trichinopoly cotton (January) plus groundnut (March) gave higher yields. In the eastern coastal districts gingelly is grown with mustard, maize and cotton of which gingelly is harvested first, then mustard and lastly maize; cotton picking generally begins as soon as gingelly is harvested. This mixture takes 150 days and yields 100 pounds of cotton lint and 200 pounds each of mustard and maize.

Mixed cropping is found to be a protection against pests aod plant diseases. In the Coimbatore District, chillies crop is subject to damage by thrips often resulting in total loss. But mixed cropping with cotton spaced 5½ feet by 9 feet served as an insurance against failure of chillies, cotton contributing its quota of

money value to the total returns. Cotton gives an average yield of 40 pounds of lint and more than compensated for the slight fall in chillies yield.

In the groundnut-growing tracts of the Madras State much damage was caused by aphids (Aphis laburnii), lowering the yield considerably and when cotton varieties are sown mixed the groundnut yield was higher than before. When cotton is mixed in the proportion of one to eight rows of groundnut, the cotton yield was 100 pounds of lint per acre along with an increase in groundnut yield by 15 to 20 percent.

Sorghum has been well known to depress the yield of the crop that follows it. This is referred to as 'sorghum-injury'. But experiments have shown that if 12 pounds of indigo (indigofera anil sumatrana) seeds per acre are sown mixed with sorghum, the yields are not reduced. The indigo plants that come up remain stunted till sorghum is havested and pull up thereafter and is ploughed in while the field is prepared for the succeeding crop. Mixing groundnut with redgram is found to reduce the incidence of pests like aphids and red hairy caterpillar (Amsacta albistriga).

In the cultivation of crop-mixtures long-duration and short-duration crops are associated to obtain the advantages of spreading labour requirements over the period from sowing to harvesting as well as to secure the maximum returns under conditions of uncertain rainfall. During years of low rainfall a good return can be had from the short-duration crops while long-duration crops give increased returns under well distributed rainfall. This kind of farming makes a continuous use of labour and equipment; lessens the aggregate cost of production and makes the optimum use of the land at the disposal of the farmer. It also secures the advantages of 'joint-product relationship' in agriculture and this fact gives the farmer a sense of self-sufficiency and security. As a rule, the more mixed the farming the more secure is the business from crop-failures owing to draught, flood, pests and diseases. Therefore, the wide-spread adoption of mixed-farming can go a long way in increasing agricultural productivity especially in the under-developed countries where cultivation depends to a considerable extent on the forces of nature over which man has precious little control.

SUGARCANE, ITS PROBLEMS AND SUGGESTIONS IN MADHYA PRADESH

By: **DEVI SINGH UMAT, 'LAL'**

SUGARCANE is grown mostly on the black cotton soils of this State. The usual practice is to apply a basal dressing of about 1400 pounds of oil-cake, followed by an equivalent amount as a top-dressing amounting to a total nitrogen dressing of about 150 pounds per acre. The manure usually consists of a mixture of oil cake and artificial fertilizer. This mixture is applied in furrows and mixed thoroughly with the soil. The practice varies from application of the full dose of nitrogen at planting time to split applications, two or more in number, depending on the tract as also on the availability of irrigation water. In most of the cases, however, phosphates are applied at the time of planting.

Unhappily, the yield of cane per acre and sugar recovery continue to be low

in this State. Climatic conditions and duration of the crop partly account for our poor performance. Our State has different kinds of soils ranging from rich black cotton soils to poor stony red soils, varying climate from humid to temperate to dry. The average rainfall in the State is 36.86 varying from 48.64″ in Raipur division 22.62″ in Indore. In other divisions it is 45.74″ in Bilaspur, 44.19″ in Rewa, 41.06″ in Jabbalpore, 28.01″ in Bhopal and 27.7″ in Gwalior. But the chief factor responsible for our poor performance is the lack of a sound system of cultivation.

There are various problems and difficulties that a cane grower is bound to face. We all know that sugarcane is a heavy feeder, a 30-ton crop removing 105 pounds of nitrogen, 315 pounds of phosphoric acid, 63 pounds of potash, 75 pounds of calcium. Where cane is intensively cultivated, yields go down because soils get depleted of available nutrients rapidly in the absence of a well planned manurial system. Practices, however, vary widely due to soil and climatic conditions. But it is advisable to give a basal dressing of organic matter in the form of farmyard manure or compost or green manure in addition to chemical fertilizer. Waste material of the sugar-industry, like press-mud, molasses and cane-trash, can also be used as an alternative source of organic matter. In the absence of sufficient data on the response of different soils of Madhya Pradesh to fertilisers and manures it is not possible here to recommend definite manurial schedules for the different regions of the State. Several years of trials will be requird to tell us what manure or manures and their combinations with fertilisers should be used-in what quantities or doses or by what method of application or at what particular times. Therefore, the suggestions which can now be made will have to be very general and may be inadequate. Most areas can be recommended a dose of 150 lbs. N and 40 lbs. P 205.

Then comes the question of proper irrigation. In our State, we generally depend on rainfall for the irrigation of our cane crop. Unless the crop is given 5 to 10 irrigations, we cannot obtain 500 to 1000 maunds per acre, which should be the minimum target of raising the yield. To provide this facility, the most important role is to be played by the Government. Where the supply of electric energy is not available, tube wells can be run by diesel engines. Where water can be had from rivers, canals may be constructed. The completion of the Chambal-dam and production of electric power thereof, is likely to step up the yield of the cane in the State.

There is, finally, the job of protecting the crop till it is harvested. From the time the cane setts are planted right up to the harvest, the crop is attacked by a number of insects and diseases. Different types of weeds, competing the crop for the soil nutrients, are also usually present in the cane fields. Plant protection of sugarcane, therefore, means protection of the cane crop from these three groups of enemies.

In the work of doing away with the pests, the control of termites has become, with the discovery of modern insecticides like BHC, DDT and Aldrin, a comparatively simple matter. The most widely-used method is the application of a mixture of 5% BHC dust (Gamexane dust D. 025) and the normal fertilizer over the setts in furrows immediately after planting. Control measures of another type of insect-the cane leaf hopper-consist of dusting the crop with 5% BHC dust at 50 lbs. per acre or spraying with 0·25% BHC or

DDT in the form of 50% water dispersible powder or 8 oz. of Endrin 19.5% emulsion per acre. Spraying the plant, for controlling another severe insect, the lygaes bug, with either 50% BHC dispersible powder, or Parathion, or Malathion emulsion, or Endrin emulsion, or HETP, has been found effective. There are a number of other insects, such as mealy bugs, white flies, grasshoppers and mites, which can be controlled by modern insecticides. The more difficult to control, however, are borers, because caterpillars are inside the plant.

Sugarcane diseases can be caused by fungi, bacteria or virus. On cane, those caused by fungi are red-rot, smut, wilt, collar-rot and mosaic. Unlike insects, none of these can be controlled by chemicals. Apart from growing "resistant" varieties, other methods, recommended more in nature of prevention, are the use of healthy setts (it would be advisable to use special areas on well-drained soil for growing seed material), destruction of diseased plants and sound cultural practices.

Possibilities of weed-control on sugarcane have been opened up by the development of selective weed-killers like 2, 4-D and MCPA. These weed-killers destroy broad-leaved weeds without harming most of the grassy type of plants such as sugarcane. A rather ingenious method of application, known "pre-emergence" treatment, also controls some of the grasses without affecting the sugarcane crop. If the first application with weed-killer is given four-five days after planting, it would suppress many of the mixed types of weed from coming up. A second application about 15 days later would give reasonably good control of most of the weeds.

Soil analysis is another important item of research work, which can give a lot of information regarding the different types and quantities of nutrients, required by the sugarcane crop under different soil and climatic conditions. Soil survey work, needless to say, is very important in any scheme of crop-growth. Without such knowledge, it is difficult to find out varietal, manurial or cultural schedules. Such conditions prevail in almost all sugarcane tracts of the State, even factory areas are not exceptions to these. A brief description of the conditions prevailing in these areas of the State will reveal the whole situation.

There are seven factories working in the Madhya Pradesh State viz.

(1) Seth Govindram Sugar Mills Ltd., Mahidpur Road,

(2) The Jaora Sugar Mills Ltd., Jaora,

(3) The Jiwaji Rao Sugar Co. Ltd., Dalauda,

(4) The Maharani Parvati Sugar Mills Ltd., Sarangpur, not working,

(5) Harpalpur factory—not working,

(6) The Gwalior Sugar Co. Ltd., Dabra, and

(7) The Bhopal Sugar Industries Ltd., Sehore.

These factories combined produce on an average 13,000 tons of sugar. The average recovery in these factories is rather low being 9.26 which is less than that in Uttar Pradesh and Bihar and other places and the same as that in the Madras State. The cane supply position in all these factories except Dabra is very unsatisfactory and the factories except in few years do not have a full season. In recovery Jaora and Dabra are the best with average recovery of 9.45% and 9.35% respectively while Mahidpur gets the poorest recovery-the average being 8.77 though the quality of

the cane is almost as good as in the other factories. The recovery in Dalauda is 8.97 with the same quality of cane as in other places. The quality of cane in Sarangpur is better than that in the other factories, though the actual recovery obtained is lower due to high manufacturing losses. But at present, this factory and one more at Harpalpur factory are not working in the State.

The main varieties in cultivation in Mahidpur Road, Jaora and Dalauda are the old 'Co.' canes, Co, 213 and Co. 210 Co. 419 and Co. 453 have been introduced in the areas and is spreading. In Dabra the main varieties are Co. 312 and Co. 453 while in Sarangpur area the main variety is Co. 419. The variety Co. 312, owing to its hardiness and nice performances, is very much popular with the growers in the State but unluckily, this variety has fallen victim to redrot disease, hence, measures to replace this variety should be taken in order to avoid the further spread of the disease in the State. In absence of sufficient data on the resistance of different varieties to this particular disease, under different soil and climatic conditions of the State, it is not possible now to recommend definite variety, resistant to this disease, for different regions of this State. Though varietal trials are in progress, in the Sugarcane Research Schemes of the State but for those recommendations we will have to wait atleast for more than three years. Therefore, the suggestions which can now be made will have to be very general. Hence, the variety Co. 312 may at present, be replaced by the varieties Co. 510, Co. 321 and Co. 245 the last one to be grown in lighter soils only (recommendation made by Dr. R. K. Tandon, Director, Sugarcane Research Station, Shahjahanpur, U. P.).

Thus there is need for evolving a sound system of crop management including such practices as green manuring, return of residues to the soil, use of bulky organic matter, application of artificial fertilizers, use of healthy setts and so on. Due attention should also be paid to time, frequency and method of application of the nutrients, in addition to finding out the suitability of different forms of fertilizers, liming of soils, rotation of crops as also the suitability of different varieties, under different soil and climatic conditions for different tracts of the State. It is a matter of great pleasure that our State, with the co-ordination of the Indian Central Sugarcane Committee, has realised the need for development of sugarcane. Various research and development schemes have already been taken up by the State, which are likely to give fruitful results in the near future.

NOTICE

The next issue of Rural India will be a joint issue for the months of January and February 1958 and will reach our Subscribers and readers by the 20th of February 1958.

Manager

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